

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 August 2003 (07.08.2003)

PCT

(10) International Publication Number
WO 03/064756 A1

(51) International Patent Classification⁷: D06N 7/00, 3/00

Jugong-APT, Wonmun2-dong, Kuacheon-si, Kyunggi-do
427-030 (KR).

(21) International Application Number: PCT/KR03/00204

(22) International Filing Date: 29 January 2003 (29.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10-2002-0005813 1 February 2002 (01.02.2002) KR

(71) Applicant (for all designated States except US): **KOLON INDUSTRIES, INC** [KR/KR]; Kolon Tower, 1-23, Byulyang-dong, Kwacheon-si, Kyunggi-do 427-040 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HWANG, Young-Nam** [KR/KR]; 107-502, Wobang Shinsekei town, Sangmo-dong, Gumi-si, Kyungsangbuk-do 730-090 (KR). **KIM, Won-Jun** [KR/KR]; 204/304 Pung-lim APT, 151-10 Hyungok-dong, Gumi-si, Kyungsangbuk-do 730-040 (KR). **CHUNG, Jae-Hoon** [KR/KR]; 204-110

(74) Agent: **CHO, Hwal-Rai**; Suite No. 1507 Yoksam Heights Bldg, 642-19, Yoksam-dong, Kangnam-gu, Seoul 135-981 (KR).

(81) Designated States (national): AE, AG, AL, AM, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EC, EE, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KZ, LC, LK, LR, LS, LT, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, RO, RU, SC, SD, SG, SK, SL, TJ, TM, TN, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

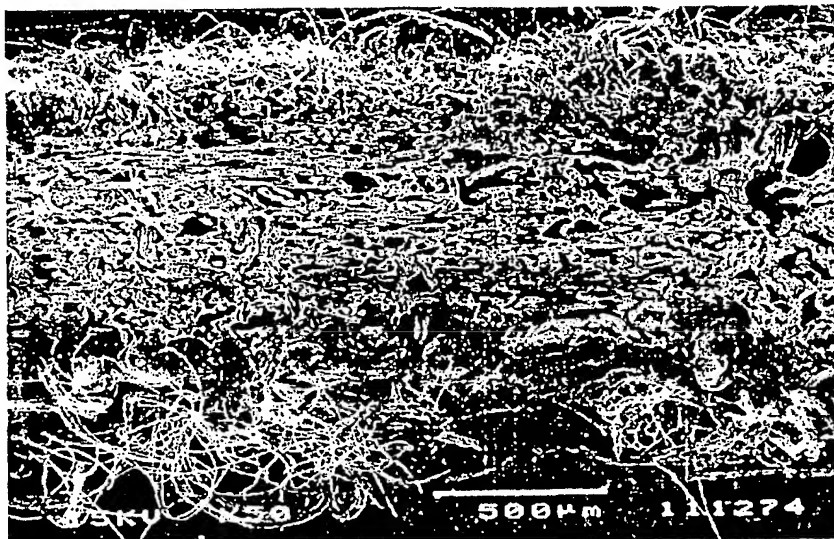
(84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A COMPOSITE SHEET USED FOR ARTIFICIAL LEATHER WITH LOW ELONGATION AND EXCELLENT SOFTNESS



(57) Abstract: The present invention relates to a composite sheet used for artificial leather with low elongation and excellent softness. The composite sheet for artificial leather comprises: a non-woven fabric layer (1) made of ultra fine fibers having a fineness less than 0.3 denier; a woven or knitted fabric layer (2) constructed from a yarn made of ultra fine fibers having a fineness less than 0.3 denier; and polyurethane resin, wherein the ultra fine fibers of the non-woven fabric layer (1) and the ultra fine fibers of the woven or knitted fabric layer (2) are entangled with each other. The composite sheet of the present invention has a stitching strength of more than 30kg/mm, an elongation at constant load of less than 20 % and a stiffness of less than 80mm. Since

the composite sheet for artificial leather of the present invention is excellent in both form-stability and softness, it is useful for the production of artificial leather for furniture, cars, men's clothing and sundry goods.

BEST AVAILABLE COPY

WO 03/064756 A1

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR03/00204

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2000-2000314087 A2	14.11.2000	EP 1031656 A1 CN 1264770 A KR 2000006659 A	30.08.2000 30.08.2000 26.12.2000
JP 2001-2001190307 A2	17.07.2001	EP 1114592 A3 US 20011024709 A CN 1306903 A KR 20010070444 A	04.10.2001 27.09.2001 06.02.2001 25.07.2001
KR 10-140491 B2	12.03.1998	NONE	
JP 62-78281 A	10.04.1987	NONE	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR03/00204

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 D06N 7/00, D06N 3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 D06N 3/04, D04H 1/58, A43B 1/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patent and applications for inventions since 1975

Korean Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

KIPASS, WIPS, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2000-2000314087 A2 (KURARAY CO., LTD) 14 NOVEMBER 2000 See the whole document	1,13
A	JP 2001-2001190307 A2 (KURARAY CO., LTD) 17 JULY 2001 See the whole document	1,13
A	KR 10-140491 B2 (DONGYANGNYLON CO., LTD) 12 MARCH 1998 See the whole document	1,13
A	JP 62-78281 A (TORAY IND INC) 10 APRIL 1987 See the whole document	1,13

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family


Date of the actual completion of the international search

21 MAY 2003 (21.05.2003)

Date of mailing of the international search report

21 MAY 2003 (21.05.2003)

Name and mailing address of the ISA/KR


 Korean Intellectual Property Office
 920 Dunsan-dong, Seo-gu, Daejeon 302-701,
 Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

BYUN, Jong Jin

Telephone No. 82-42-481-5405

